

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (currently amended) A drive device of a liquid droplet discharge head comprising a piezoelectric vibrator ~~[and]~~ which discharges liquid droplets from a discharge section by applying a predetermined drive waveform to said piezoelectric vibrator^[1], wherein^[1]

a drive control unit is provided that drives said piezoelectric vibrator according to said drive waveform composed of a curved shape^[1], and

said drive waveform is free of sharp edges.

2. (cancelled)

3. (original) A drive device of a liquid droplet discharge head according to claim 1, wherein said drive waveform is generated by being converted from a rectangular or trapezoidal square wave by a waveform conversion unit.

4. (original) A drive device of a liquid droplet discharge head according to claim 1, wherein said drive waveform contains a discharge waveform for discharging said liquid droplets, and a microvibration waveform that minutely vibrates said piezoelectric vibrator to a degree that it does not discharge said liquid droplets.

5. (original) A film manufacturing apparatus provided with a drive device of a liquid droplet discharge head according to claim 1 that performs film manufacturing treatment at a predetermined location on a treated object by discharging a functional liquid from said liquid droplet discharge head.

6. (original) A film manufacturing apparatus according to claim 5, wherein said film manufacturing apparatus is a device that produces a color filter.

7. (original) A film manufacturing apparatus according to claim 5, wherein said film manufacturing apparatus is a device that forms a film having for its constituent element an organic electroluminescence element.

8. (original) A film manufacturing apparatus according to claim 5, wherein, said film manufacturing apparatus is a device that discharges a liquid containing metallic fine particles from said liquid droplet discharge head, and which forms a film to serve as metal wiring by discharging said liquid onto a desired surface.

9. (currently amended) A drive method of a liquid droplet discharge head comprising ~~[the discharge]~~ discharging of liquid droplets from a discharge section by extending and retracting a piezoelectric vibrator according to a predetermined drive waveform^[5], wherein

said method has ~~[processing]~~ a process of driving said piezoelectric vibrator according to said drive waveform composed of a curved waveform^[6], and

said drive waveform is free of sharp edges.

10. (cancelled)

11. (original) A drive method of a liquid droplet discharge head according to claim 9, wherein said drive waveform is generated based on a rectangular or trapezoidal square wave.

12. (original) A drive method of a liquid droplet discharge head according to claim 9, wherein said drive waveform contains a discharge waveform for discharging said liquid droplets, and a microvibration waveform that minutely vibrates said piezoelectric vibrator to a degree that it does not discharge said liquid droplets.

13. (original) A film manufacturing method that forms a film using the drive method of a liquid droplet discharge head according to claim 9.

14. (original) A film manufacturing method according to claim 13, wherein, said film manufacturing method is used when forming a film to serve as a constituent element of a color filter.

15. (original) A film manufacturing method according to claim 13, wherein, said film manufacturing method is used when forming a film serving as constituent element of an organic electroluminescence element.

16. (original) A film manufacturing method according to claim 13, wherein, said film manufacturing method forms a film to serve as metal wiring by discharging a liquid containing metallic fine particles from said liquid droplet discharge head onto a desired surface.

17. (cancelled)

18. (original) A device production method for producing a device by coating a functional liquid at a predetermined location on a substrate, wherein a step is contained in which the functional liquid is discharged at a predetermined location of said substrate from said liquid droplet discharge head using a drive method of a liquid droplet discharge head according to claim 9.